

Invertebrate Conservation News



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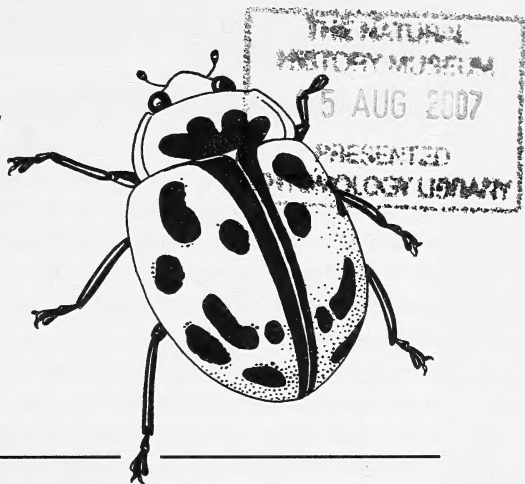
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INVERTEBRATE CONSERVATION NEWS



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EDITORIAL

This issue of *ICN* includes an item about the implications of an international code of conduct, under which museums should apply certain conditions before accepting biological specimens. The code, which has existed since 1986, is intended to protect vulnerable species and habitats from harmful exploitation. It therefore deserves very much to be upheld in principle but it is becoming increasingly difficult to uphold in practice.

The main problem arises because the code requires compliance with every regional, national or international law that might conceivably apply to the acquisition, possession or transfer of every specimen that might be offered to a museum. In principle, no reputable museum would wish to condone the violation of any law. In practice, however, many countries have enacted indiscriminate 'catch-all' laws, which have created serious difficulties and uncertainties for anyone wishing to collect invertebrates.

Although catch-all laws are unnecessary for conservation, they may have another purpose – especially in 'third world' countries. After a history of colonial exploitation, many such countries wish to prevent foreign collectors from plundering their natural resources for commercial gain. Also, a more recently emerging concern is that companies in rich countries may file patents on naturally occurring genetic resources, without any benefit to the country of origin; a practice which is perceived as bio-piracy.

So as to avoid breaking draconian laws when collecting abroad, biologists and naturalists are increasingly forging contacts with members of official institutes in the countries concerned. Apart from



helping to ensure that permits are provided, such contacts can be very valuable in themselves. There is, however, no guarantee that a particular country will have appropriate experts with whom links can be established. Also, the effort that is required in order to establish international contacts is perhaps excessive for an amateur who desires only the freedom to do some casual collecting while on holiday.

Even if permits have been obtained, or if working relationships have been established with overseas colleagues, there seems to be plenty to deter would-be collectors when they venture abroad. For example, a permit might be very specific regarding the taxa that can be collected or the region of the country where the collecting can be done. Any infringements could lead to the confiscation of the entire catch, if not incarceration or a large fine.

It can seem bizarre that we are now living in a world where governments enact inappropriate laws against innocuous activities, while at the same time allowing or supporting unsustainable developments which are destroying and damaging biodiversity on an ever-increasing scale. Knowledge of invertebrate faunas is an essential tool in the amelioration of the damage and there is therefore a need to encourage those who are capable of gaining such knowledge, rather than to deter or criminalise them.



NEWS, VIEWS AND GENERAL INFORMATION

London campaign to save garden habitats

Back gardens represent a very important component of urban green space and are very valuable for wildlife. The continuing loss of this habitat due to site re-development has been a recurring theme in *ICN*. Even when gardens are not redeveloped for housing, their owners are increasingly obliterating habitats by paving the land. This also has the effect of increasing the runoff of rainwater, thus increasing the risks of extreme events; i.e. flooding and reduced river flow during droughts.

It is encouraging to see that the London Wildlife Trust has launched a campaign to help stem the tide of obliteration and destruction of garden habitats. The Trust calculate that the paving of front gardens alone has amounted to an area 22 times the size of Hyde Park in the



last ten years. The Trust has already undertaken a survey, the results of which are helping to identify characteristics which enhance the value of gardens for wildlife. For example, it appears that the common carder bee *Bombus pascuorum* is more likely to occur in gardens with at least four square metres of long grass. (Meanwhile, a survey by the Wildlife Trusts has shown that many householders are more concerned with supporting 'attractive' species such as birds, hedgehogs and frogs, than with encouraging invertebrates.)

Sadly, the shortage of housing in many parts of the UK, especially London, has led politicians to encourage the redevelopment of gardens for housing. Under UK government policy, gardens are classified as 'brownfield' land and thus to be regarded as suitable for redevelopment. Ken Livingstone, the Mayor of London, clearly favours the provision of new housing but he is supporting the Trust's campaign against the paving of gardens. He is quoted as saying that the current proposals under his 'Biodiversity Strategy' encourage Londoners to maintain flowerbeds and lawns, rather than to pave over them. Information about the campaign can be found at: www.wildlondon.org.uk. Related information can be found at: www.london.gov.uk/assembly/reports.

Legal dilemma for museums

For more than twenty years museums have been subject to an international code of ethics, which has far-reaching implications for their freedom to accept biological specimens. In entomological circles within the UK, little was heard of this code until recent discussions at Invertebrate Link, the national forum for invertebrate conservation.

On 4th November 1986 in Buenos Aires, Argentina, the International Council of Museums (ICOM) adopted its Code of Professional Ethics by unanimous agreement of its 15th General Assembly. Six years later in Rio de Janeiro, Brazil, governments around the world signed up to the UN Convention on Biological Diversity. The international obligations laid down in the Rio Convention were reflected in an amendment of the ICOM Code at the 20th General Assembly of ICOM in Barcelona, Spain on 6th July 2001.

Under the ICOM code, a museum should not acquire any biological specimen by any means (purchase, gift, loan, bequest or exchange) unless the governing body and responsible officer "*are satisfied that a valid title to it can be obtained*". In this context, "valid title" means clear evidence that the specimen was not illegally acquired in, or exported



from, its country of origin or any intermediate country in which it may have been owned legally. The Code leaves no room for doubt that it requires compliance with *"any local, national, regional or international wildlife protection or natural history conservation law, or treaty, of the museum's own country or any other country"*.

Given that the Code is intended to protect endangered species and habitats from harmful exploitation, it is laudable and deserves to be upheld. Clearly, no reputable museum would wish to condone harmful activities or to be seen as the recipient of illegally acquired specimens. The Code is, however, only as reasonable as the laws which it seeks to enforce. There would be no problem if all those laws were just and fit for purpose. But in reality, countries have enacted laws that indiscriminately criminalise the collection of invertebrates, by banning it on a blanket basis, or by scheduling large assemblages of species without reference to any valid criteria of vulnerability.

The work of museums is fundamentally important in the conservation of the biodiversity which the Code purports to protect. Strict compliance with the ICOM code is therefore potentially very counter-productive if it restricts the acquisition of specimens far beyond the spirit of the Code. The problem is not confined to cases involving laws that are extreme and indiscriminate. Under UK law, for example, a licensing system applies to the sale of certain invertebrate species that are vulnerable but not to the extent of meriting a total ban on their collection. For a museum to accept specimens of any of these species in compliance with the ICOM Code, there would be a need to have full documentation, either of legal collection by a private individual or of licensed sale.

The ICOM Code seems to throw up problems even in cases involving non-scheduled invertebrate species. In the UK, there would in principle be a need to prove that specimens of any invertebrate were not illicitly obtained from a Site of Special Scientific Interest (SSSI) or from a site covered by bylaws. In practice, collectors generally have no reasonable means of knowing the boundaries of SSSIs. Moreover, the Code effectively requires documentation for any species obtained from anywhere, since it rules out the acceptance of specimens if there is no clear proof that the finds were disclosed to the owner or occupier of the land concerned.

The Code allows for the possibility that *"a professional conflict can exist when an acquisition, highly desired by a museum, lacks provenance"*. Exceptions to the strict provisions of the Code are, however, allowed only in rare cases; mainly when there is scientific value of international significance.



It is interesting that the Code has existed for so long without arousing much concern amongst invertebrate specialists, at least in the UK. Perhaps the concern was slight in earlier years, because there were still many countries in which invertebrates could be collected with little or no restriction. The draconian laws that now exist in many countries have been enacted in more recent years. Compliance with the ICOM Code has therefore become more difficult and uncertain than was probably the case in 1986.

There is clearly a need for a pragmatic solution, which will not detract from the underlying aims of the Code. Invertebrate Link should be a useful forum for exploring solutions as far as UK museums are concerned. Meanwhile, it is perhaps instructive to look at examples of current practice. One example of an approach which may be worth emulating comes from the Association of Systematic Collections (ASC) in the USA, which has produced a document entitled *The Ethics and Responsibilities of Museums with Respect to the Acquisition and Disposition of Collection Materials*.

The ASC guidelines have been developed from a document which was first formulated for use in New York State. With regard to the need to uphold laws controlling biological specimens, the main guidance is not to accept any specimen that, after diligent enquiry, is found to have been illegally imported into the United States or to have been collected or recovered under circumstances that would support or encourage irresponsible damage to or destruction of biota or collecting sites.

In the UK, a 'Museum Accreditation Scheme' has been issued by the Museums, Libraries and Archives Council. The Scheme includes a *Model Acquisition and Disposal Policy*, which seems to follow all the provisions of the IMOC Code. A museum complying with the Policy "*will not acquire any object or specimen unless it is satisfied that the object or specimen has not been acquired in, or exported from, its country of origin (or any intermediate country in which it may have been legally owned) in violation of that country's laws*". The policy emphasises that such laws include any national or international wildlife protection or natural history conservation law or treaty of the United Kingdom or any other country.

Launch of Buglife, Scotland

Buglife - The Invertebrate Conservation Trust has set up an office in Scotland, with Craig Macadam as its conservation officer. The location is in Stirling, where the Bumblebee Conservation Trust and the Scottish office of Butterfly Conservation are also based.



Reduced price for educational slide packs

The 35 mm invertebrate slide packs, produced jointly by the AES and English Nature (now part of Natural England) have always been good value for money and they are now on offer at a considerably reduced price. The packs, which include educational text by Dr. Roger Key, are especially useful for presentations to organisations such as natural history societies, many of which use 35 mm projectors, rather than digital technology. Each pack contains 48 high quality slides and is now priced at £22.50 incl. p&p, or just £42 for all 96. Pack No. 1 covers 'Grassland & Heathland and Wetland & Woodland'. Pack No. 2 covers 'Upland & Farmland and Coastal & Brownfield Sites'. Cheques, made payable to the "Amateur Entomologists' Society", should be sent to: AES Slide Packs, c/o Peter May, 6 Aigburth Avenue, Bognor Regis, West Sussex PO21 3DA, UK.



SITES AND SPECIES OF INTEREST

Stag beetle survey in England

The People's Trust for Endangered Species is continuing its programme of work to help conserve the stag beetle *Lucanus cervus*, for which the Trust is the Lead Partner in the Biodiversity Action Plan. The programme now includes the 'Bury Buckets 4 Beetles' project, in which homeowners are encouraged to create habitats by burying perforated plastic buckets, filled with woodchips, in their gardens. If prepared and periodically topped up, as shown in a PTES leaflet, the buckets are suitable for oviposition by adult females and will support the entire larval development of the offspring. The leaflet includes a registration form, so as to provide PTES with information about participants' previous sightings of the stag beetle and about the dates and places where buckets have been buried. Copies of the form and information can be obtained from: www.ptes.org.

Review of status of butterflies in the UK

Butterfly conservation has issued a new report entitled *The State of Britain's Butterflies 2007*. This shows that over three-quarters of the 54 native resident species are declining (with five species already extinct). The report also shows that declines of more than 30% have occurred in



the distributions of 21 species in the last 25 years. On the other hand, a few threatened species have increased or stabilised and this is seen as the result of conservation efforts, led by Butterfly Conservation under the UK Biodiversity Action Plan (BAP). Also, 15 species are spreading, probably because of climate change.

The species showing the most sustained declines include the Marsh Fritillary *Euphydryas aurinia* and the Heath Fritillary *Mellicta athalia*. Other species causing serious concern are the High Brown Fritillary *Fabriciana adippe*, Silver-studded blue *Plebejus argus* and the Duke of Burgundy Fritillary *Hamearis lucina*. Species that have recovered include the Adonis blue *Lysandra bellargus* and the Silver-spotted skipper *Hesperia comma*, the colonies of which have increased from 68 in 1982 to more than 250 currently. There is also the well known story of the Large blue *Maculinea arion*, which became extinct in the UK in 1979 but was later reintroduced successfully to a number of sites.

As a result of survey work, a number of changes are being made to the list of BAP Priority Species. Sixteen species are proposed for addition to the list. Among these are the species mentioned above as being in serious decline and the White Admiral *Ladoga camilla*, the Wood white *Leptidea sinapis* and the Small blue *Cupido minimus*. Three species are proposed for demotion to 'Species of Conservation Concern': *H. comma*, *L. bellargus*, both of which have recovered, and the Large Copper *Lycaena dispar dispar*, which is extinct in the UK.

Meanwhile, BC is involved in management schemes for the recovery of the species that are declining. For example, BC's Cumbria Branch has been raising funds to pay contractors to create glades in Witherslack Wood near Morecambe Bay, where *F. adippe* and the Pearl-bordered fritillary *Boloria euphrosyne* occur. Also in this area, the Forestry Commission has been restoring habitats on limestone pavement, limestone grassland and bracken-covered areas by felling two plantations of Corsican pine *Pinus nigra*.

The Sussex Emerald moth and nuclear decommissioning

The 2006-07 issue of Butterfly Conservation's *Lepidoptera Conservation Bulletin* (No. 8) reports some encouraging news about the Sussex Emerald *Thalera fimbrialis*. The number of moths recorded in light traps at Dungeness, Kent in south-east England rose to 399 in 2006, compared with 292 in 2005 and 205 in 2004. In a survey of larvae by Sean Clancy, over half of the sightings were within the compound of the Dungeness nuclear power stations. There is concern that their



habitats could be adversely affected by the decommissioning of Dungeness A power station but it is hoped that any damage can be minimised through agreement with the Nuclear Decommissioning Authority.

Brownfield butterfly conservation in the English Midlands

Brownfield conservation is a theme of another of the reports in the *Lepidoptera Conservation Bulletin* (No. 8), published by Butterfly Conservation. In the English Midlands, many habitats occur on industrial or post-industrial sites and they are therefore an important consideration in the BC project 'Conserving Butterflies and Moths at a Landscape Level'. Under the project, BC is giving advice to site managers, so as to help protect and enhance habitats and to create habitat corridors across the landscape. Of the four project officers, one has special responsibility for brownfield habitats in the Midlands. She has been identifying some valuable butterfly habitats and has been finding considerable support and co-operation from the site owners.

At Huntington Gravel Pits in the Cannock area of Staffordshire, the discovery of a colony of the Dingy skipper *Erynnis tages* led to some habitat creation work by the Coal Authority. In the nearby city of Stoke-on-Trent, surveys of *E. tages* sites have led to discussions with the city council and a major property company, with a view to creating a north-south corridor through the city. In the county of Warwickshire, BC was able to secure an agreement to prevent the destruction of a colony of the Small Blue *Cupido minimus* at Southam Quarry, operated by Cemex. In the longer term, habitats of this butterfly seem to have been secured, under a restoration scheme for the site.

Honeybee decline in N. America and Europe

In recent months, North American and European newspapers have been reporting an exceptionally widespread and severe mortality among honeybees. In some parts of the USA, up to 70% of colonies are said to have collapsed. The first observations of something unusual seem to date back as far as two years. In earlier times, American beekeepers reported mass mortality in the 1890s and the 1960s.

The scale and geographic range of the mortality are so great as to indicate the involvement of some factor other than the familiar causes of death, which include starvation and a range of diseases and parasitic disorders. Also, beekeepers have been observing a particular



combination of signs, which may typify a distinct and new disorder, now termed 'colony collapse disorder' (CCD). The signs include a rapid dwindling of the bee population, the presence of a laying queen with few (mainly young) attendant bees and the presence of honey and pollen which are not being consumed by secondary invaders.

Following reports of mass mortality of bees in the USA, beekeepers in various European countries have been reporting a similar phenomenon. It is, however, difficult to say whether CCD is present in Europe until the disorder can be more precisely defined and attributed to a distinct cause. In the UK, the official view of the government ministry concerned with such matters (Defra), is that CCD is not present. Meanwhile, American research workers are trying to determine whether there has been an emergence of a new causal agent, or just an unusual upsurge in previously known diseases or disorders. The problem is seen to be so serious for beekeepers and farmers that the US Army's Edgewood Chemical Biological Center has been brought into the investigation. There have also been claims that radiation from cell phones and other wireless communication systems is disrupting the navigation system of foraging bees.

Despite the concerns about a shortage of honeybees for the pollination of crops, there are of course other insects, including other kinds of bee, which are very important pollinators. The Xerces Society has been encouraging its members to campaign for the conservation of native pollinators in the USA. The main aim of the Xerces campaign is to ensure that the 2007 Farm Bill will include funding for this purpose.

From a conservation standpoint, it may be significant that CCD has so far been reported only amongst honeybees, but this may simply reflect the fact that domestic honeybees are much more under scrutiny than wild bees. It seems unclear whether wild honeybee colonies have been collapsing in any unusual way; if so, this could have implications for their survival. Also, if pollination of wild plants, as well as domestic crops, is adversely affected, there could be indirect effects on a wide range of invertebrate and other species in the wild.

Bumblebee project in England

Buglife – The Invertebrate Conservation Trust is running a programme to inform members of the public about bumblebees, so as to enable them to provide records of sightings. A 'Big Bumblebee Hunt' is scheduled for July and August 2007 in London and Essex and there will also be bumblebee walks and a series of 'get to know bumblebee days'.



Participants in the survey will be requested to look for bumblebees in their gardens, allotments, local parks or cemeteries, or in safe accessible brownfield sites. Records can be submitted via the Buglife website (www.buglife.org.uk), or via other means on request.

Flies of Sandy Exposed Riverine Sediments

Buglife – The Invertebrate Conservation Trust is studying the ecology of flies living in sandy banks and shoals and bars in rivers. These habitats are essential for a very specialised fauna, including rare beetles as well as flies, and can be threatened by the canalisation of rivers and by changes in hydrology. Buglife is focussing on three species that the UK Government has identified as high priority for conservation action. Two of these, *Spiriverpa lunulata* and *Clorismia rustica*, are stiletto-flies (Therevidae); moderately large, furry flies with silver males. Their larvae are long, thin and white, with a glossy hard skin that helps them slither through dry sand as they chase insect prey. The third BAP Priority species is a rare crane fly, *Rhabdomastix laeta*, whose larvae live in shallow water at the edge of sandy streams and rivers.

Buglife looked at five rivers in 2005 – the Usk and Monnow in Gwent, the Rother in West Sussex, the Wey in Surrey and the Lune in Lancashire. A particularly strong population of *C. rustica* was found on the Rother, where it was perhaps associated with the eroding dry sandy bank tops rather than with deposited sand. On the Usk, *Spiriverpa lunulata* was found well upstream of the Abergavenny area, where it had been recorded previously. There was some confusion over *R. laeta*, since two species have been found to exist under this name; the true *R. laeta* and *R. japonica*. All previous UK records have been found to be of *R. japonica* but *R. laeta* was found for the first time in Britain on a sandy Devon river in 2004 and its population confirmed in the Buglife survey in 2005.

The BAP priority riverflies form only a very small proportion of the flies associated with sandy rivers. In all, 529 species of fly were found in the Buglife survey, of which sixty are nationally rare or scarce. They also included six species newly recorded in Britain, these being two empids (*Hilara aartseni* and *H. tenella*), two dolichopodids (*Asyndetus latifrons* and *Rhaphium* sp.), an ephydrid (*Ditrichophora* sp.) and a tiny carnid (*Meonura anceps*). In further surveys, Buglife will be comparing the habitat preferences of the flies and the beetles along river margins.





RESEARCH NOTES

Grassland beetles: diversity in relation to grazing management

The use of various grazing regimes to improve grassland habitats for invertebrates in the UK is often reported, but studies have in many cases focussed on Lepidoptera – especially on individual species which are the subject of recovery plans. Recent studies by a research group based at Reading University and other institutes have involved beetles, which collectively represent a very wide range of 'lifestyles' and which arguably provide a more balanced indicator of the value of different regimes.

Grazing by livestock can provide a diverse range of habitats but it can destroy and degrade these habitats when it becomes very intensive and accompanied by the species-poor re-seeding of pastures and the heavy use of fertiliser and agro-chemicals. Equally, a cessation of grazing leads to a major change in habitat because it allows a succession of woody plant species. Ideas for ameliorating these problems have been addressed in the studies reported here. One study (Woodcock *et al.*, 2005) assessed the benefits of short-term rotational grazing on chalk grassland, while the other study (Woodcock *et al.* 2007) assessed methods for creating species-rich margins around intensively grazed fields.

Structural diversity has been a key consideration in the research, since the habitat value of a uniformly short sward may be very limited, even if many plant species are present. Important structural features include a diversity of sward heights, tussocks and a plentiful supply of the various parts of plants (e.g. inflorescences and seed pods), which are required by the larval or adult stages of a wide range of invertebrate species. These features are not favoured by sustained intensive grazing and are largely obliterated by mowing or burning. The latter practices are sometimes employed in the conservation management of areas which are too small to be moderately grazed by resident livestock. The authors consider that intensive grazing on a short-term rotational basis is better than mowing or burning for structural diversity (as well as providing additional habitat resources, such as dung and carrion). They have designed their research so as to evaluate such grazing under a range of management options.

The earlier of the studies, which took place in 2003, involved a survey of beetle diversity on Salisbury Plain in southern England, which includes one of the largest areas of calcareous grassland in Europe. Military occupation resulted in an absence of grazing over most of the



grassland, which lasted for about fifty years. Eventually, there were growing concerns about scrub invasion and an increase in average sward height, and so grazing was reintroduced under licence to tenant farmers within approximately 2,990 hectares (7,390 acres) of the grassland. The licensing system results in relatively small plots being quite heavily grazed, but only in alternate years.

The study plots on Salisbury Plain represented five management regimes: (1) no grazing for approximately 50 years; (2) rotational cattle grazing reintroduced within the previous 2-3 years; (3) rotational sheep grazing reintroduced within the previous 2-3 years, (4) rotational cattle grazing over the previous 10 years and (5) rotational sheep grazing over the previous 10 years.

The results showed no overall differences in beetle abundance, species richness or evenness but there were large differences in the abundance and species richness of beetles within different 'guilds'. Four such guilds were recognised for the purposes of data analysis; they consisted of a predatory/polyphagous guild and three phytophagous guilds (flower/seed feeders, root feeders and foliage feeders). Beetles in the phytophagous guilds were more abundant under the long-term grazing regimes, which had favoured a range of plant species by suppressing tall, tussock-forming grasses. Over the ten-year period of grazing, there had also been more time for the beetle communities to develop. The ungrazed plots were, however, more structurally complex than those that had been grazed.

The authors point out that grazing has direct effects on invertebrate populations (e.g. due to soil compaction and the deposition of dung), in addition to the indirect effects caused by alterations in the plant cover. Their study plots were not grazed during the year of the study, so that the direct effects of grazing were not immediately evident. Also, vegetation was more abundant than it would have been during a period of grazing.

Most of the beetle species found were relatively common and there was no indication that rare species were favoured by particular regimes. The authors point out, however, that their sampling procedures were not designed to detect the presence of the more specialised species. In principle, rotational grazing would be expected to favour a wider range of plant species, together with their associated specialist beetle fauna.

The authors conclude that high intensity grazing over short periods, as conducted on Salisbury Plain, may be a useful form of management in other calcareous grasslands where maintaining resident populations of livestock is impracticable or uneconomic.



The other study took place on intensive livestock farms in south-west England and involved the monitoring of beetle populations in ten-metre-wide field margins for two years under seven different sward management treatments. The treatments comprised different combinations of inorganic fertilisation, cattle grazing, and timing and height of cutting. Under the least intensive treatment, field margins were 'unmanaged' (neither cut nor fertilised and with cattle excluded), whereas the most intensely treated margins were fertilised, cut twice a year and then grazed by cattle to a sward height of 5–7 cm. The latter treatment approximated to conventional intensive management.

Over the two-year period, the beetle populations responded differently according to the sward treatment. In general, the abundance and diversity of species was greatest in the least intensively managed field margins after two years. There was, in particular, a greater proportion of seed/flower-feeding beetles. The results indicate that there would be benefits in lightly managing the margins of intensively grazed fields, so as to emulate the well established system of unsprayed margins around arable fields. Solutions such as this are important in the development of conservation strategies in the wider countryside.

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FUTURE UK MEETINGS

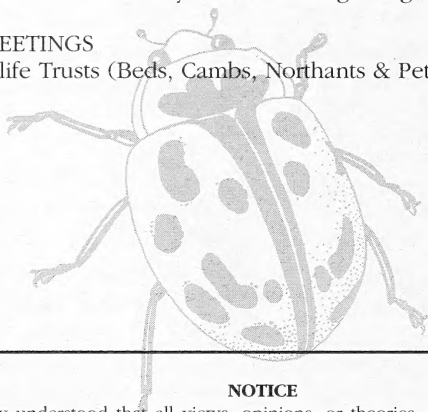
The Wildlife Trusts (Beds, Cambs, Northants & Peterborough)

Sunday 19th August, 10.00 a.m. to 4 p.m.: Coopers Hill, Bedfordshire. This is a workshop led by Dr Brian Eversham on heathland invertebrate indicators, including insects and spiders. Participants will be shown how to identify a range of key species and introduced to a new method for monitoring the condition of heathland. Fee: free to various categories of volunteers in the Trust; £20 for non-professionals; £100 for professional trainees.

Details from: trainingworkshops@wildlifebcnp.org (tel. 01604 405285).

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NOTICE

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